scoring 500 or below. A loss of superior scientists and engineers from among DoD's 115,000 employees in these occupations could prove especially critical now. 9/ Past increases in the budgetary resources devoted to national defense arguably could place a premium on the skills and experience of superior federal workers. 10/

CAUSES AND CONSEQUENCES OF TURNOVER

The foregoing analysis indicates that turnover is a phenomenon that touches each major agency and occupation in government. But what effect does it have on an organization, and why does it occur? 11/

While managers and others commonly view turnover as a negative occurrence, the literature on the subject stresses that it has both good and bad consequences. From this perspective, the utility of turnover to a given organization will depend on the balance of positive and negative effects. In varying degrees, turnover has been associated with increases in administrative staff, greater formality in procedures, loss of morale, and lower job satisfaction. Much attention has been devoted to the costs associated with turnover, such as the costs of recruiting and training workers to replace those who leave, and of the disruption of the workplace that occurs as workers come and go. (Federal cost experience is described in Chapter III.)

On the positive side, turnover has been linked with the opportunity to introduce to the workplace new ideas, organization, technology, and procedures. It has also been associated with the opportunity to replace poor performers.

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9. A recent study of selected DoD occupations shows that, during the first five years of employment, salaries for federal scientists and engineers are lower than those available in the private sector. Such pay disparities could contribute to a loss of scientists and engineers at DoD, although special pay rates are available to help correct disparities in pay that make it difficult for the government to recruit and retain workers. Systems Research and Applications Corporation, *Retention of DoD Civilians* (Arlington, Virginia, April 1985).

10. To the extent that engineers and scientists with high aptitude leave federal service to work in private defense and aerospace industries, quit rates overstate the loss of superior workers to national defense. The rates are more appropriate as a gauge of the loss of capabilities for the federal management of defense activities.

11. For a complete discussion of the causes and consequences of turnover, see Mobley, *Employee Turnover,* and James L. Price, *The Study of Turnover* (Ames: Iowa State University Press, 1977).

Studies find different degrees of linkage between turnover and an assortment of organizational and other factors that cause or help explain it. For some factors, like size of firm, no clear pattern emerges from the literature. For others, the findings are more consistent. High turnover has been associated both with low seniority and age and with high levels of employment and education. Researchers have found relationships between turnover and such factors as compensation, job satisfaction, and organizational centralization. Nevertheless, because organizations vary significantly, the influence of a particular factor on turnover will not be the same for all.

CHAPTER II

COMPARISON OF FEDERAL AND NONFEDERAL TURNOVER RATES

One can evaluate whether an organization's turnover is high or low by comparing it with the turnover experienced by other organizations. The private sector commonly serves as the standard of comparison for government. Comparisons contained in the Office of Personnel Management's December 1984 report show federal quit rates that were just over 13 percentage points below those in the private sector. 1/ OPM argues that differences of that magnitude indicate that federal compenstion is more generous than it needs to be to attract and maintain an adequate workforce.

The Congressional Budget Office developed a number of comparisons of turnover among federal and private-sector workers and found federal turnover generally lower than that experienced by other organizations, but the differences were considerably smaller than those found by OPM. Similar comparisons by CBO between federal and selected state governments revealed that federal turnover was lower but that the differences between the two workforces were not as great as those between federal and private-sector workforces.

COMPARISONS WITH THE PRIVATE SECTOR

Comparisons of turnover rates should cover similar turnover measures, workforces, and time frames. Developing accurate comparisons between federal and private-sector workforces can be difficult, however, because data are scarce and organizations collect and report them differently. The federal government, for example, reports data on turnover for full-time workers with permanent appointments--a designation not regularly used by private firms. OPM's analysis of federal and private-sector quit rates has

1. Office of Personnel Management, *Reforming Federal Pay: An Examination of More Realistic Pay Alternatives* (December 1984), Table V.

been criticized for the lack of comparability in both the measures and the workforces used in the analysis. 2/

Using the limited data available, CBO constructed a number of comparisons, each of which shows relatively low federal turnover. Because exact comparisons were impossible, however, the magnitude of the differences shown should be viewed as approximations of actual differences. Moreover, the comparisons cover very large groups of workers and therefore provide only a general overview of differences in turnover. The experience for particular regions, occupations, and agencies may be very different. Agency managers would want more specific comparisons as a basis for making decisions concerning personnel.

Because economic conditions may influence turnover levels, CBO examined turnover data for several recent years. Only 1984 data are reported here, because comparison results proved similar regardless of the year considered.

General Comparisons

To obtain an overview of turnover patterns, CBO first looked at data for the federal and private-sector workforces that included both blue- and white-collar employees. Data from the Bureau of National Affairs (BNA), which issues quarterly reports of median turnover rates that currently cover about 500 mostly nonfederal organizations, were used for analysis of turnover in the private sector. 3/ The data cover both blue- and white-collar employees and all types of separations except layoffs and extended leave, but do not include detail by occupation and type of separation.

Based on BNA reports for fiscal year 1984, CBO estimates annual turnover rates of 15.5 percent for nonmanufacturing organizations and 16.9 percent for nonbusiness organizations, including those that provide health

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2. For a critique of the OPM comparisons of quit rates, see *Investigation Into the Accuracy and Comparability of the Data Presented in a Report Entitled "Reforming Federal Pay, an Examination of More Realistic Pay Alternatives," Issued by the Office of Personnel Management*, Committee Print 99-4, House Committee on Post Office and Civil Service, 99:1 (April 18, 1985).

3. According to the BNA, its survey covers a small number of federal and state and local government workers. In 1985, for example, two small federal agencies belonged to the forum that reports turnover data to the BNA. The number of federal and other government workers is so small, however, that BNA data may be considered a fair representation of the private-sector workforce.

care. 4/ Turnover in the federal government for 1984 (excluding extended leave and layoffs) totaled 9.3 percent--about 6.2 percentage points below the BNA nonmanufacturing rate and 7.6 percentage points below the BNA nonbusiness rate.

Taken in their entirety, the federal and private-sector workforces are not very comparable. According to data from the Bureau of Labor Statistics (BLS), for example, the government's workforce has a much smaller portion of blue-collar jobs than the private sector's. To account for this difference and its potential effect on turnover rates, CBO then compared only white-collar employees in the two workforces.

White-Collar Comparisons

White-collar workers on the General Schedule and similar pay plans account for more than three-quarters of the federal government's civilian, nonpostal workforce. For a comparable sample from the private sector, CBO used data from the Administrative Management Society (AMS), a professional management association that conducts biennial surveys of turnover among white-collar workers in a variety of nonfederal organizations nationwide. To enhance comparability between the two groups of white-collar workers, CBO used AMS data for nonmanufacturing workers, who more closely resemble federal white-collar workers.

Comparisons using AMS data also show relatively low federal turnover. Using data from the 1984 AMS survey, which covered about 1,760 establishments and over 275,000 workers, CBO estimates annual quit rates for white-collar nonmanufacturing workers of 10.9 percent (see Table 4). 5/ This compares with a quit rate for federal white-collar workers of 4.9 percent--a difference of 6.0 percentage points.

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4. Quarterly BNA reports give median monthly turnover rates by industry for each month of the quarter. CBO constructed its 1984 figures by adding the rates reported for each month of the fiscal year. According to the BNA, organizations included in the nonbusiness category of firms, a subcategory of nonmanufacturing, are mostly not-for-profit organizations.

5. According to the AMS, a small but indeterminate number of federal workers are covered by the survey in addition to a somewhat larger number of state and local government employees. Because the portion of government workers is small, CBO has used the AMS data as a fair representation of private-sector turnover.

The AMS also reports data that permit comparison of the quit rates for some specific types of businesses with those for selected federal agencies engaged in somewhat similar lines of work. Comparisons of more narrowly defined groups of white-collar workers may mask fewer of the differences that exist with comparisons of more aggregated groups. The comparisons, however, also show lower federal turnover, but differences between federal and private-sector quit rates are smaller--ranging from 3.0 percentage points for research and development to 5.5 percentage points for management of natural resources (see Table 4).

TABLE 4. COMPARISON OF QUIT RATES FOR WHITE-COLLAR WORKERS IN FEDERAL AND SELECTED PRIVATE-SECTOR ORGANIZATIONS, 1984

	All Types of Work	Selected Types of Work: Banking and Insurance	Selected Types of Work: Natural Resources	Selected Types of Work: Research and Development
Selected Private-Sector Organizations	10.9	12.4	8.7	6.3
Federal Agencies	4.9	8.5[a]	3.2[b]	3.3[c]
Percentage-Point Difference	6.0	3.9	5.5	3.0

SOURCE: Congressional Budget Office, from data provided by the Administrative Management Society and the Office of Personnel Management.

NOTE: Federal data for fiscal year 1984 cover the full-time permanent workforce on the General Schedule and similar schedules. The AMS survey for calendar year 1984 intends to cover full-time workers and exclude part-time, temporary, or emergency employees. (No follow-up audits are conducted.) AMS characterizes its study as an office survey, but it covers some occupations not commonly thought of as office work, such as scientist and engineer. CBO derived quit rates from AMS survey data on reasons for leaving.

a. Covers the Department of Treasury.
b. Covers the Departments of Interior and Agriculture.
c. Covers the National Aeronautics and Space Administration.

Some analysts suggest that transfers between agencies should count as quits, just as an employee leaving one firm for another in the same line of work would count as a quit in most private-sector data. According to this view, given the size of government and the diversity of its activities, a federal employee who transfers may achieve the same change of environment, pay, and management style and the same enhanced opportunity for advancement that a private-sector worker achieves by changing firms. (Turnover data generally exclude transfers within an organization or agency.) Inclusion of transfers in the CBO comparison would cause the federal quit rate to rise to 6.8 percent--4.1 percentage points lower than the AMS rate (see Table 5). Taking the federal transfers into account also changes differences observed in comparisons using selected types of work. The differences range from 1.6 percentage points for banking and insurance to 4.1 percentage points for natural resources management.

Counting transfers may somewhat overstate federal turnover relative to that in the private sector. A transfer between agencies involves no loss to the federal worker of leave and other benefits. By contrast, a private-sector worker changing firms may face a considerable drop in some benefits. Confronted with similar losses, federal workers might not transfer as much, and combined quit and transfer rates would fall. CBO, however, counted only transfers between major federal departments and independent agencies. Transfers between the government's major bureaus, which can rival in size many large private firms and for which data are not recorded, were excluded along with other intra-agency transfers.

EXPLAINING LOW FEDERAL TURNOVER

Why is federal turnover lower than that reported by many private firms? Dissimilarities in reporting methods may explain some of the difference. Part-time workers, for example, generally show higher rates of turnover. Therefore, turnover data that cover some part-time workers, like that reported by BNA, will generally show higher turnover than data, like the federal information used here, that covers only full-time workers with permanent appointments--all else being equal.

Even in the absence of reporting problems, however, turnover will vary among groups compared, depending on differences in many factors such as compensation, age, gender, and occupational distribution. The private sector, for example, has more sales workers than the government. Turnover among sales workers is traditionally higher than among most other occupational groups, and to the extent that data on nonfederal turnover accurately

TABLE 5. COMPARISON OF QUIT RATES FOR WHITE-COLLAR WORKERS IN FEDERAL AND SELECTED PRIVATE-SECTOR ORGANIZATIONS, WITH FEDERAL RATES ADJUSTED TO INCLUDE TRANSFERS, 1984

		Selected Types of Work		
	All Types of Work	Banking and Insurance	Natural Resources	Research and Development
Selected Private-Sector Organizations	10.9	12.4	8.7	6.3
Federal (Including Transfers)	6.8	10.8[a]	4.6[b]	4.2[c]
Percentage-Point Difference	4.1	1.6	4.1	2.1

SOURCE: Congressional Budget Office, from data provided by the Administrative Management Society and the Office of Personnel Management.

NOTE: Federal data for fiscal year 1984 cover the full-time permanent workforce on the General Schedule and similar schedules. The AMS survey for calendar year 1984 intends to cover full-time workers excluding part-time, temporary, or emergency employees. (No follow-up audits are conducted). AMS characterizes its study as an office survey, but it covers some occupations not commonly thought of as office work, such as scientist and engineer. CBO derived quit rates from AMS survey data on reasons for leaving.

a. Covers the Department of Treasury.
b. Covers the Departments of Interior and Agriculture.
c. Covers the National Aeronautics and Space Administration.

reflect the number of sales workers outside government, it could help explain the relatively higher private-sector rates. 6/

6. Two studies of job tenure support the view that sales workers have higher turnover than workers in other occupations. According to both studies, average tenure of male sales workers is about 15 percent below the average tenure of all workers. Francis W. Horvath, "Job Tenure of Workers in January 1981," *Monthly Labor Review* (September 1982), pp. 34-36; and Ellen Sehgal, "Occupational Mobility and Job Tenure in 1983," *Monthly Labor Review* (October 1984), pp. 18-22.

Aspects of federal hiring practices and of the federal retirement system that tend to push up the average age of the workforce may also help explain low federal turnover. As described earlier, turnover declines with age and with length of service.

Among the hiring practices and patterns that contribute to an older federal workforce are the aging of the workers hired as government expanded during the 1960s; the stability in the size of the workforce over the past decade and recent agency hiring freezes, which limit the number of young entry-level workers; and the federal policies that favor hiring veterans, who generally enter the civilian workforce at an older age than nonveterans. 7/

The design of the Civil Service Retirement (CSR) system also helps to keep workers in service and, thus, to lower turnover. As a rule, a retirement plan that offers benefits only after completion of a specified length of time encourages long service: the larger the benefit promised, the stronger the incentive to stay. Pensions in government generally represent a greater portion of compensation than do pensions and other forms of deferred compensation in the private sector, thus providing federal workers with a particularly strong incentive to stay and collect. (Incentives to stay increase with length of service, as illustrated by the example in the box on the following page.)

In addition, provisions of CSR penalize workers who leave the federal government. A federal employee leaving before retirement cannot draw benefits until age 62. The benefit received at that time is based on the salary earned just before leaving government and is likely to have been significantly eroded by inflation in the interim. Thus, employees who quit federal service before retirement age face a considerable loss of benefits. (Pending changes in CSR may alter incentives to stay in federal service.) Private-sector workers under Social Security, by contrast, continue to accumulate benefits regardless of tenure with a particular firm. In similar fashion, deferred compensation provided under the thrift plans offered by increasing numbers of private firms can continue to grow, because of interest earnings, whether a worker stays or leaves. Many thrift plans also include borrowing and cash withdrawal provisions. One study under way tentatively attributes the difference between federal and private quit rates

7. According to OPM, about 20 percent of the workers entering federal service in 1984 were veterans. In general, entering federal workers are older than one might expect. The average age of the new full-time, white-collar worker hired in 1981 was 30.

THE RETIREMENT REWARDS OF LONG FEDERAL SERVICE

The retirement rewards a federal employee earns increase with continued service, thus providing a strong incentive to stay in government. (Of course, many considerations influence an employee's decision to stay or leave.) Federal pensions, in fact, are calculated to reflect both time on the job and salary growth during employment. Moreover, employees can preserve the value of earned retirement benefits by serving until the age at which benefits can be received. Because federal benefits stop accumulating when an employee leaves, the value of benefits can be seriously eroded by inflation between the time an employee departs and receipt of benefits.

The rewards of continued federal service can be illustrated by comparing the present value of the extra retirement wealth employees with different ages and seniority can earn by working just one more year. In the examples below, extra retirement wealth is measured as the present value of the extra pension income a worker would earn if he or she worked one more year. A worker at age 42 with 15 years of service and 20 years before retirement age can earn an extra $4,100 in retirement wealth by working one more year--an amount equal to 15 percent of current salary. A worker at age 52 with 25 years of service and only 10 years to retirement age, on the other hand, can expect to add an additional $16,100, or 37 percent of salary, to the amount he or she had already earned in pension benefits. The larger amount would likely carry a much heavier weight in considering the advantages and disadvantages of continuing in government.

	Worker At Age 42	Worker At Age 47	Worker At Age 52
Years of Service	15	20	25
Salary	28,000	34,000	43,400
Dollars of Extra Retirement Wealth	4,100	8,000	16,100
Extra Retirement Wealth as a Percentage of Salary	15	24	37

NOTE: The examples above assume that each worker would draw pension benefits for 20 years beginning at age 62. (Although not shown here, workers with a full government career could receive an immediate pension as early as age 55 with 30 years of service or at age 60 with 20 years.) These examples assume annual pay adjustments and pension cost-of-living adjustments of 5 percent. A 7 percent discount rate was used to calculate present values, which were rounded to the nearest $100.

TABLE 6. AGE DISTRIBUTION OF FEDERAL AND PRIVATE-SECTOR WHITE-COLLAR WORKERS, 1984 (In percents)

	Age		
	16-20	21-35	36 and Over
Federal	1	34	65
Nonfederal	3	46	51

SOURCE: Congressional Budget Office, from data provided by the Bureau of Labor Statistics.

NOTE: Federal and private-sector data cover nonpostal, white-collar civilian employees working full-time schedules.

entirely to the features of the federal pension system. In fact, the study shows that federal turnover rates stand about 3 percentage points higher than would be expected after correcting for differences between federal and private pension benefits. 8/

Retirement and hiring practices have helped to create a federal workforce that is older than the private sector's. According to BLS data for 1984, while almost two-thirds of the federal white-collar workforce is 36 or older, as shown in Table 6, just over half of the private sector's white-collar workers fall within that range. 9/ In fact, assuming that federal turnover patterns remained the same, but that the age distributions of federal workers corresponded more closely to those in the private sector, about 2.0 percentage points could be added to federal white-collar turnover rates. (This figure was derived by weighting federal turnover rates for different age groups by the age distribution of the private-sector workforce.)

8. Unpublished draft supplied to CBO staff by Richard A. Ippolito, "Pensions and Quit Rates: The Case of Federal Workers."

9. The workforce for which CBO developed age comparisons, referred to here as white collar, consists of workers in the following BLS occupational categories: managerial, professional, technical, sales, and administrative support. CBO also developed comparisons of federal and private-sector workforce distributions by sex, region, and occupation. Available data did not contribute to an explanation of the observed differences in turnover.

Adjusting for differences in age distribution (without explicitly isolating the effects of retirement plans) and adding transfers to federal quit rates significantly narrows the gap between federal and private-sector turnover rates. For white-collar workers, the difference falls from 6.0 percentage points to 2.1 percentage points, as illustrated below.

Private-Sector Rate (AMS)	10.9
Federal Rate	4.9
Difference	6.0
- -	
Private-Sector Rate (AMS)	10.9
Adjusted Federal Rate (2.0 percentage points added for age differences, 1.9 percentage points for transfers)	8.8
Difference	2.1

COMPARISONS WITH STATE GOVERNMENTS

Government-to-government comparisons offer another perspective on federal turnover. The Congressional Budget Office also compared turnover among federal workers with that experienced by five large state governments--California, Illinois, New York, Pennsylvania, and Texas.

The data show that the federal government's quit rates (without adjustments) are lower than those of the selected state governments, but the differences are smaller than those found in the comparisons based on private-sector data from both the Administrative Management Society and the Bureau of National Affairs. The average quit rate for the five states totaled 6.1 percent--about 1.8 percentage points higher than the comparable federal rate of 4.3 percent (see Table 7). If an average for the states is calculated excluding information on Texas, a state with traditionally very high turnover, federal and state turnover rates are very close--4.3 and 4.9, respectively.

TABLE 7. COMPARISON OF QUIT RATES FOR FEDERAL AND STATE GOVERNMENTS, 1984

All Federal	Five-State Weighted Average	States				
		California	Illinois	New York	Pennsylvania	Texas
4.3	6.1	4.3	6.7	6.0	2.2	12.4

SOURCE: Congressional Budget Office, from data provided by the Office of Personnel Management and five state governments.

NOTE: Federal data for fiscal year 1984 cover full-time, permanent Wage System employees and those paid according to the General Schedule and similar plans. CBO attempted to obtain similar data for state executive branch civil servants excluding state police and state teachers, large state occupations for which there are no federal counterparts. Data for Texas, however, cover some judicial branch employees; the data for New York cover some part-time workers; and the data for Pennsylvania and California cover some security personnel. The five-state average is weighted by state employment.

Variations in turnover between states may be attributable to a variety of factors. Adverse economic conditions, for example, may help explain low turnover in Pennsylvania. Variations in pay rates may also account for differences in turnover. The scarcity of data and variations in pay plans and workforce organization, however, make comparisons difficult.

CHAPTER III

QUIT RATES AS A BASIS FOR EVALUATING COMPENSATION

Employee turnover rates can serve as a useful management tool. 1/ Their interpretation, however, requires a great deal of care. Low turnover can signal good employee-employer relations or stagnation. High turnover can mean costly loss of experienced personnel or the introduction of needed fresh talent and new ideas. Increases and decreases in turnover rates can indicate changes in labor market conditions and employee reaction to alterations in working conditions, management practices, and compensation policy.

The Office of Personnel Management, among others, has urged the use of workforce indicators, such as turnover, to supplement surveys of pay comparability in evaluating federal pay. 2/ Should the government adopt turnover rates as a new management tool or as part of more sweeping pay reform, concerns will arise regarding:

- Developing benchmark statistics and other required data;
- The costs incurred when employees leave; and
- Personnel management.

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1. In monitoring its turnover, for example, the Merrill Lynch investment company found that it was losing many of its best new brokers. Given the expense of the extensive training new brokers receive, the separation of good workers represented a loss to the company and a boon to its competitors. Consequently, the firm redesigned aspects of its compensation package to encourage its best new brokers to stay. The company monitored turnover rates for the targeted workers as a measure of the success of their efforts and found a drop in separations. See Allen C. Bluedorn, "Managing Turnover Strategically," *Business Horizons*, vol. 25 (March/April 1982).

2. Statutory policy on federal salaries establishes that they conform to salaries for similar private-sector jobs based on annual surveys conducted by the Bureau of Labor Statistics. In recent years, however, policy and practice have not conformed. For a discussion of the need to supplement the current approach, see The President's Pay Agent, *Comparability of the Federal Statutory Pay Systems With Private Enterprise Pay Rates*, Annual Report (1985), p. 5.

QUIT RATES AS A BENCHMARK

Workers decide to leave jobs for a variety of reasons. Better financial opportunity plays a part in many decisions. Thus, quit rates can help managers determine how their wages and benefits compare with those offered by the competition. The Office of Personnel Management would like to see labor market indicators such as quit rates added to management's tools for evaluating federal pay. In December 1984, OPM suggested supplanting the current pay-setting system with one that relies heavily on comparisons with quit rates in the private sector. 3/ Under this plan, low quit rates would signal excessive wages and the need to limit the size of annual pay increases. High quit rates, on the other hand, would point to the need for pay increases to maintain the government's position in competing for workers. Because the government must compete with private firms for workers, the comparisons of quit rates developed by OPM use private-sector experience as the standard or benchmark by which to judge federal quit rates.

Existing sources of private-sector data, however, are not well suited for comparisons with government. Given the size and complexity of the federal government, with its 50 or more white-collar pay systems and over 400 occupations, useful private-sector data would have to be at least as detailed and comprehensive as the pay surveys currently used to help determine annual federal pay adjustments. Making comparisons of the quality necessary to help federal managers would require the development of new private-sector data--a task that could prove to be a major undertaking. Collecting data on turnover in the private sector would require the commitment of federal resources. Private-sector firms may also have to commit resources to respond to federal reporting requirements. Many firms currently do not keep detailed data on turnover, and none keep data according to prescribed federal standards that would be necessary for comparisons with federal data. Surveys on quit rates, moreover, would confront many of the same controversies as pay surveys. Debate would continue, for example, on which jobs to compare, on the appropriate size of firm to survey, on whether to include state and local governments, and on how to assess the quality of workers.

Using quit rates to help evaluate pay would also necessitate developing techniques for isolating the influence of pay from all the other factors that determine whether a person stays or leaves. As explained earlier, low federal quit rates may tell as much about the federal retirement system as

3. Office of Personnel Management, *Reforming Federal Pay: An Examination of More Realistic Pay Alternatives*(December 1984), pp. 27-33.

they do about the competitiveness of federal salaries. Analysts who have studied the issue differ about the influence of pay alone on the quit behavior of federal workers. A 1981 study of a sample of white males employed by the government between July 1978 and December 1979 concluded that pay rates have a small influence on quit behavior. 4/ According to this analysis, a 20 percent cut in pay would increase quit rates for these workers by only 1.4 percentage points.

A recent study examined the influence of earnings opportunities outside government on employees who quit the Department of Defense during the first nine years on the job. 5/ The study found the influence of compensation to vary by occupation and to decline with years of service (that is, new workers attached greater value to differences in current as opposed to future compensation). For administrative workers and scientists and engineers, the study concluded that nonmonetary factors such as job security and working conditions may be especially important influences on decisions to stay or leave. Technical workers appeared to be most influenced by salary. For the average technical worker with five years of service, according to the report, a 10 percent cut in pay would increase the rate at which employees leave the Defense Department by 0.4 percentage points.

THE COSTS OF TURNOVER

Various costs are incurred as a result of employee turnover. These include out-of-pocket costs for recruiting and training new workers to replace those who leave, and indirect costs such as the extra supervisory time required by new workers and the lower productivity of new employees not fully trained. Managers who are planning changes that might affect turnover--lowering pay or benefits, for example--should consider such costs in weighing the advantages and disadvantages of their decisions.

Federal managers wishing to consider all the costs of turnover in their decisionmaking would face a formidable task because of the number and variety of costs involved. Data for even the most obvious costs are generally difficult to obtain, and techniques for valuing less obvious indirect costs are poorly developed or nonexistent. A 1977 study recommending

4. George J. Borjas, "Labor Turnover in the U.S. Federal Bureaucracy," *Journal of Public Economics*, vol. 19 (1982), pp. 187-202.

5. Systems Research and Applications Corporation, *Retention of DoD Civilians* (Arlington, Virginia, April 1985).

wage cuts at the U.S. Postal Service (USPS), for example, weighed the savings from lower pay against anticipated increases in recruitment costs as more workers quit. 6/ According to the study, the optimal wage for the USPS would keep to a minimum the sum of wages and recruitment costs. In the absence of actual cost data, however, the optimal rates were based completely on hypothetical cost assumptions and were not included in policy conclusions. 7/

Despite the problems encountered in estimating such costs, turnover can be expensive, and managers who ignore these costs may do so at great risk. To illustrate the kinds of costs that can arise as a result of turnover, CBO obtained data on recruitment and placement costs for selected federal jobs from five major federal agencies: the Department of the Army, Department of the Navy, General Services Administration, Internal Revenue Service, and Veterans Administration.

The CBO data show variation in cost by occupation--high costs for professional and administrative jobs with high skill levels, and lower costs for less technical, clerical positions (see Table 8). Managers taking actions that would necessitate hiring more medical officers, for example, could face recruitment and placement costs that average $22,200 per position, while the manager hiring more secretaries would face estimated costs averaging $300 per position. 8/ Managers would not want to have to incur large recruitment costs, such as those associated with the job of medical officer, too frequently. On the other hand, if an organization could plan on having the services of an individual over many years, the cost would appear less burdensome. If a medical officer stayed in a position the nine years that the average federal professional is estimated to stay on the job, for example, the replacement costs estimated by CBO would amount to only about 4 percent of the officer's payroll for the period. The comparable figure for secretary, assuming time on the job at the two years averaged by clerical workers, is 1 percent of payroll. Actions taken to shorten the time workers will remain in their jobs, of course, would cause these figures to rise.

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6. Douglas K. Adie, *An Evaluation of Postal Service Wage Rates* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1977).

7. Adie, *An Evaluation*, pp. 103-110. In its conclusions, the study recommended a wage that would increase quit rates to 12 percent a year, not to an optimal rate. The 12 percent represents about the highest rate experienced by USPS over a historical period.

8. Ironically, it appears that the pay system based on quit rates, which OPM once suggested, would have targeted for quit rate increases the nonclerical, professional, and administrative occupations with the highest replacement costs.

The variations in costs by occupation found by CBO suggest that more widespread use of comparisons of federal and private turnover ought to consider differences across occupational categories. Several factors help explain the generally higher recruiting costs for professional, administrative, and similarly ranked jobs. Filling such positions often involves more time and more senior staff. Depending on the job, for example, review panels of experts may be called together to screen applications. Such positions also more commonly involve payments for relocation, security clearances, and other expenses.

TABLE 8. RECRUITMENT AND PLACEMENT COSTS FOR FILLING SELECTED FEDERAL POSITION VACANCIES, 1985

Type of Position	General Schedule Grade	Average Cost per Vacancy (Rounded to the nearest $100)
Medical Officer a/	15	22,200
Computer Specialist b/	12	4,600
Attorney c/	14	2,900
Nurse a/	9	2,400
Accounting Technician	5	400
Secretary	5	300

SOURCE: Congressional Budget Office, from data provided by the Department of the Army, the Department of the Navy, the General Services Administration, the Internal Revenue Service, and the Veterans Administration.

NOTE: Data reflect direct federal costs for fees (such as those paid to physicians for examining new employees) and salaries only. Indirect costs, such as those for lost productivity, are not included. Data from the General Services Administration and the Internal Revenue Service reflect Washington-area experience only. Costs are estimated for filling positions through merit promotion procedures.

a. Applies only to the Department of the Army and the Department of the Navy.
b. No data provided by the Department of the Army.
c. No data provided by the Veterans Administration.

Recruitment and placement are only two of the many costs associated with employee turnover, and other costs may be considerably larger. Cost, moreover, is not the only disadvantage of turnover. Data from the General Services Administration permitted CBO to estimate the potential production time lost while positions are being filled. Such lost time can result in backlogs, delays, and products of lower quality (although effective management can help alleviate the worst of the problems associated with vacancies). At the General Services Administration, the average civil service position, filled through open competition, remains vacant about 32 days. Managers, of course, might be asked to cope with the cost and inconvenience of increased turnover if the personnel actions that cause people to leave also produce even larger savings. Savings from pay reductions, for example, might be substantial. In any event, the costs of turnover--both direct and indirect--ought to be part of management decisionmaking.

PERSONNEL MANAGEMENT

In addition to practical considerations of costs and data collection, managers contemplating the use of analysis of quit rates as an element of personnel management will have to consider how best to approach the effort. Effective management seems to argue for carefully differentiating quit rates and for supplementing analysis of quit rates with other information to adjust pay.

Undifferentiated approaches can have unwelcome consequences. They can adversely affect the quality of the workforce--for example, lowering pay and increasing turnover in locations where capable workers are hard to recruit and leave at disproportionate rates. Strict application of a quit-based pay system, moreover, precludes the possibility of offering high pay to secure an above-average workforce for a particular mission, when the high pay also means low quit rates. Given that, in the federal government, retirement and some other non-pay-related factors help keep quit rates low, strict application of pay adjustments based on quit rates may simply result in successive pay reductions that reduce the quality of the workforce the government can recruit, and that have only small effects on overall quit rates.

The study of civilian workers in the Department of Defense, for example, found that even for new workers (who have fewer attachments to an organization), quit rates increase at most by 1.13 percent for each 1 percent reduction in pay, as calculated for technical workers with three

years of service. 9/ Assuming these effects would hold for successive changes in pay, it could take about three years to raise the quit rate of the average technical worker from 4.4 percent to the 6.0 percent target once set forth by OPM--even assuming a 10 percent real reduction in pay per year. The 6.0 percent target represented part of an illustrative quit-based pay plan developed by OPM. Under this plan, occupations with low quit rates would get half the annual comparability raises granted other workers until their rate rose to 6.0 percent a year. 10/

Successive pay reductions of the sort that could occur under a system based on analysis of quit rates could arguably reduce employee morale, especially among workers with lengthy federal service who view pay increases as fair recompense for long and loyal service and who cannot afford to leave because of their stake in the retirement system. Moreover, such reductions could dramatically lower the quality of the workers the government is able to recruit. A decline in the quality and experience of federal workers could prove particularly critical over the next several years, if greater numbers of senior employees leave government because of impending retirement changes. When properly applied, on the other hand, quit rates can serve as useful personnel management tools.

9. Systems Research and Applications Corporation, *Retention of DoD Civilians*, p. 5-30.

10. Office of Personnel Management, *Reforming Federal Pay*, pp. 29-33.